

Improving the Oral Health of Colorado's Children

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Executive Summary

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Children's oral health is one of the top priorities for the nation—and Colorado. Colorado's governor has designated children's oral health as one of the state's 10 winnable battles over the next five years.

Oral disease may unnecessarily impact a child's performance in school, speech development, nutrition, self-esteem and sleep. Yet it is entirely preventable through three major areas of focus:

- Public health strategies
- Access to oral health care
- Educate children and families

Oral disease may unnecessarily impact a child's performance in school, speech development, nutrition, self-esteem and sleep.

Colorado children living in poverty face the greatest oral health challenges despite increased awareness about the importance of oral health, more preventive measures such as fluorides and sealants, and efforts to improve access to oral health care.

Nearly 60 percent of low-income kindergartners in Colorado have suffered from tooth decay. For more than one in four of those children, tooth decay goes untreated.

Most of those kindergartners have dental coverage through publicly funded programs—Medicaid and Child Health Plan *Plus* (CHP+). But fewer than half use the coverage. Only one in four visited the dentist by age 1 as is recommended.

Why? The reasons are complex:

- **Public health strategies.** Proven preventive strategies—such as community water fluoridation and school-based sealant programs—are underutilized.
- **Access to oral health care.** Too few dental providers accept publicly funded programs, and not enough are trained to treat very young children.
- **Educate children and families.** Families may not realize how important early dental care is or that publicly funded dental coverage exists.

Colorado has made commendable strides in addressing children's oral health needs. Local foundations have increased investments in prevention, access to care and workforce development. Public-private collaborations have



In this brief:

- Oral health data for Colorado's children
- State responses to children's oral health needs
- Best practices and next steps



expanded resources to address needs. Despite limited infrastructure, the Colorado Department of Public Health and Environment has collected and analyzed oral disease data and assessed workforce capacity.

Still, much more can be done to help ensure that Colorado's children have the best oral health possible. To increase awareness of oral health and prevent oral disease:

- Communities should investigate and prioritize the public health strategies of community water fluoridation and school-based sealant programs.
- Health care providers for children and adults should consider integrating oral care into their practice.

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- Colorado should continue to expand the capacity of its dental and health care workforce as the oral health provisions in the Affordable Care Act roll out in 2014, break down barriers to participation in publicly funded programs and ensure providers can practice to the full scope of their training.
- Colorado should consider building oral health infrastructure at state and local health department levels to help communities meet new core public health services and monitor the progress of improving oral health for all Coloradans.

Introduction

Every three to five years the Colorado Department of Public Health and Environment screens a sample of kindergartners and third-graders to assess trends in tooth decay.

The Colorado Oral Health Surveillance System also tracks the number of children who experience tooth decay, the percentage with tooth decay that goes untreated and access to proven preventive measures such as community water fluoridation and sealants.¹

THE DATA

The oral health of Colorado's children has not improved significantly in the past decade. This is particularly true for uninsured children or those enrolled in publicly funded programs such as Medicaid and Child Health Plan *Plus* (CHP+).

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Nearly 60 percent of low-income kindergartners in Colorado have suffered from tooth decay. For more than one in four of those children, tooth decay goes untreated. Compare this to their higher income peers who have half the rate—34 percent—of oral disease.

The U.S. Surgeon General's report, *Oral Health in America*, identifies oral disease as a disease of poverty. Colorado's data supports that finding.² An early analysis of the state's preliminary screening data

from the 2010-2011 school year anticipates only very slight improvement.

CAUSES OF ORAL DISEASE

Oral disease, also known as tooth decay, has complicated causes with no single solution. Many factors affect a child's susceptibility, including the mother's or primary caregiver's oral health, the family's preventive practices, access to dental insurance and care close to home as well as community water fluoridation.³

Individual diet choices, bacteria levels in the mouth and the child's overall health also matter. So does each child's history of oral disease. Previous tooth decay is a predictor of future dental problems.⁴

PREVENTION STRATEGIES

Reducing oral disease requires a multifaceted approach that focuses on all of the causes. Simply providing treatment, while important, is not enough to eradicate the disease.

Oral disease may unnecessarily impact a child's performance in school, speech development, nutrition, self-esteem and sleep, yet it is entirely preventable through three major areas of focus:

- Public health strategies
- Access to oral health care
- Educate children and families

Public Health Strategies

Public health strategies benefit the population as a whole. For dental public health, the most effective strategies are community water fluoridation and school-based sealant programs.

COMMUNITY WATER FLUORIDATION

Adjusting fluoride levels in drinking water to prevent tooth decay reduces oral disease by as much as 40 percent.⁵

Yet Colorado continues to lose ground on the percentage of its population served by optimal levels of fluoride in drinking water—the result of misinformation about the safety and efficacy of fluoridation.

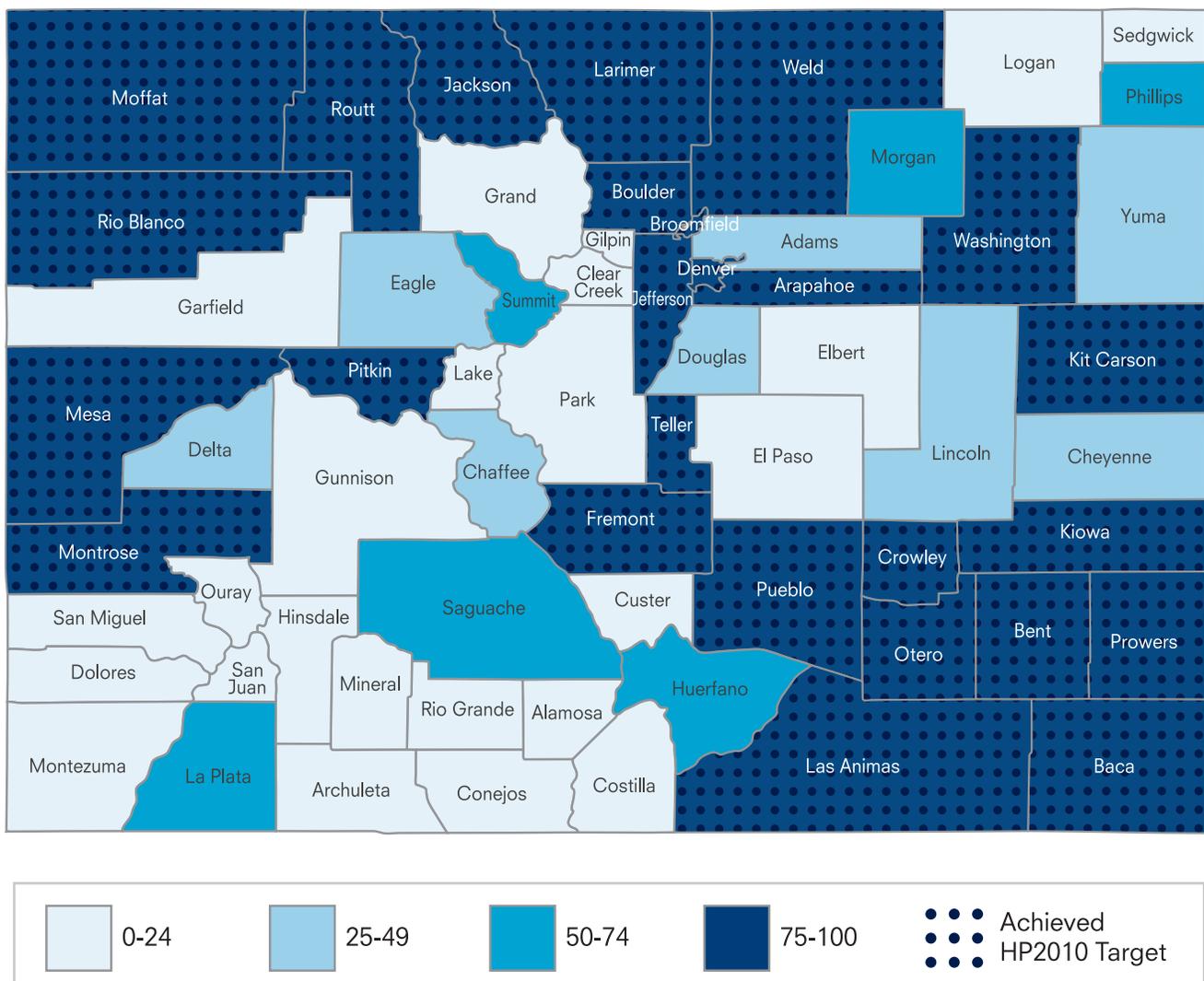
The Healthy People 2020 goal for access to community water fluoridation is 75 percent of the national

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population, although it is likely that at least one in four Coloradans still will not have access to optimal levels of fluoride in drinking water. Colorado, once above the goal, now is at 70 percent.⁶

Research in Louisiana and New York shows significantly increased Medicaid expenditures—as much as 33 percent more—in counties without optimal levels of fluoride in the water supply.⁷

Percentage of Colorado Population Served by Optimal Levels of Fluoride in Public Drinking Water Systems by County (Centers for Disease Control and Prevention)





SCHOOL-BASED SEALANT PROGRAMS

Another proven dental public health strategy is school-based sealant programs. When applied properly, sealants prevent decay on a tooth's chewing surface.

Providing dental sealants in a school setting is especially effective for at-risk children. The number of decayed teeth averted is noteworthy when:

- Targeting schools where at least 50 percent of families participate in the federal free and reduced-price school meal program
- Providing sealants to each second-grader's first permanent molars with parental permission

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Safety net dental providers, such as Federally Qualified Health Centers and community-funded safety net clinics, have led the way in ensuring low-income children receive sealants. Yet less than half of Colorado's eligible schools have a program.⁸

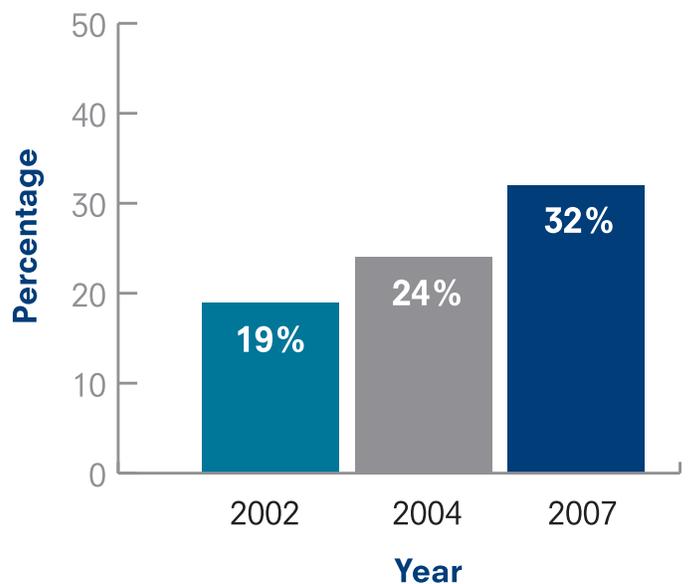
LEGISLATION

In 1997, legislation authorized community water fluoridation efforts and school-based sealant programs, but did not allow state appropriations. Instead, it authorized permission to seek grant funding to support the projects. While Colorado has been fairly successful in securing federal grants to expand these preventive efforts, most of these resources have diminished significantly in the last three years.

COLORADO ACCOMPLISHMENTS

- The Colorado Department of Public Health and Environment initiated the "Be Smart & Seal Them" program to increase the percentage of eligible schools with a school sealant program. As a result, the number of third-graders with sealants in permanent teeth has nearly doubled in the past decade, from 19 percent to 33 percent.⁹
- Colorado's Public Health Act—Senate Bill 194 passed in 2008—ensures a cohesive state public health system. One component is "Colorado's Public Health Improvement Plan: From Act to Action," which creates a more uniform service model. The Colorado State Board of Health has included oral health in its rules about core services to be provided throughout the state. This will be helpful as currently only two of the state's local health departments offer oral health services.

Percentage of Third-Graders in Eligible Schools with Pit and Fissure Sealants (Colorado Department of Public Health and Environment)



Access to Oral Health Care

The U.S. Department of Health and Human Services recently identified access to oral health as a leading health indicator for Healthy People 2020, which provides science-based, 10-year national objectives for improving the health of all Americans.

In Colorado, access to routine dental care is particularly challenging for low-income children.

The oral health indicator measures the number of people age 2 and older who used the oral health care system in the previous 12 months.¹⁰ Nationally, almost 45 percent used the oral health care system in the last year. The goal by the year 2020 is 49 percent. While there are no specific state-level data for all ages, Colorado monitors access to dental services for children and may set state-specific targets for Healthy People 2020.

In Colorado, access to routine dental care is particularly challenging for low-income children. A 2011 Colorado Health Access Survey shows that 22 percent of children 18 and younger do not have dental insurance, including Medicaid or CHP+.¹¹ While most low-income children are enrolled in Medicaid and CHP+, utilization rates remain below that of the insured population.¹²

MEDICAID AND CHP+

More than 400,000 Colorado children were enrolled in Medicaid with an average of 91 percent enrolled for 90 continuous days in 2010.¹³

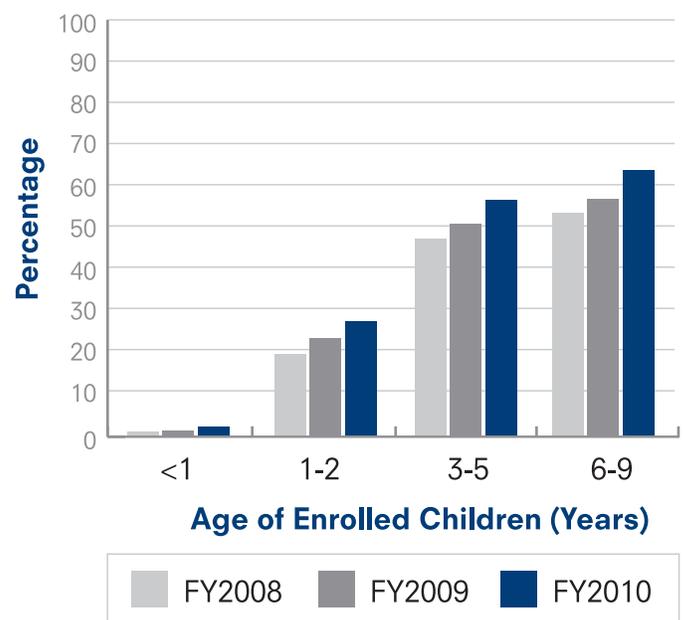
Colorado Medicaid has made significant strides to improve dental utilization rates despite a considerable increase in Medicaid enrollment and a decrease in the number of participating dental providers.

Various sources have published different dental utilization numbers, making it confusing and difficult to understand the Medicaid access issue. The most common data source on children using Medicaid dental services is the federal Centers for Medicare & Medicaid Services Form-416 report. These annual reports make it easier to establish trend analyses. They show that for all age groups, Medicaid dental utilization in Colorado has increased by 17 percent in the past three years while enrollment has increased by more than 22 percent.

The utilization rate for children ages 6 to 9 is 60 percent, but less than 30 percent for children under the age of 3—when selecting a “dental home” and establishing a relationship with a dentist is crucial.

Utilization of dental services by children enrolled in CHP+ is similar to Medicaid, based on an analysis by the Colorado Health Institute (CHI) using data collected between 2005 and 2009. CHI identified that continuous enrollment over 12 months greatly increases the likelihood that children will receive any dental service.¹⁴

Colorado: Percentage of Medicaid Utilization by Age and Year (Colorado Department of Health Care and Policy Financing)



PROVIDER SHORTAGE

While the number of children eligible for publicly funded programs has increased, the number of dental providers willing to serve these children remains extremely low.

Data show that only 15 percent of Colorado dentists submitted at least one Medicaid claim in 2009, although a few more stated that they accepted Medicaid, but did not submit claims.¹⁵ The number of participating CHP+ dental providers was nearly double that of Medicaid at about 31 percent.¹⁶

Of Colorado’s 64 counties, more than 20 do not have a participating Medicaid dentist.¹⁷ Poor reimbursement rates, missed appointments and burdensome paperwork are the primary reasons dentists cite for not participating.

Dental hygienists in Colorado may practice unsupervised and are eligible to be recognized Medicaid providers. For many of the same reasons that dentists cite, the number of participating dental hygienists also has decreased.

Colorado Dentists' Acceptance of Sliding-Fee Payment, Medicaid and CHP+ by Practice Location (Colorado Health Institute)

Access by payer source	Urban	Rural
Access by payer source	99.5%	97.7%
Offers sliding-fee payment schedule	12.8%	13.3%
Accepts Medicaid	21.3%	21.1%
Accepts new Medicaid patients	17.9%	15.9%
Accepts CHP+	31.3%	42.6%
Accepts new CHP+ patients	31.1%	40.6%
Accepts Delta Dental	88.9%	–
Accepts new Delta Dental patients	90.7%	–

COLORADO ACCOMPLISHMENTS

- Dental benefits for children are mandated in federal health care reform legislation.¹⁸ As states develop their health insurance exchanges, pediatric oral health is required as an essential benefit. Colorado is making great strides in developing its own exchange with implementation possible prior to 2014.
- Colorado foundations invested \$2.25 million in 2011 to create the Colorado Partnership for Children’s Oral Health. The goals are to increase the number

of Medicaid dental providers in Colorado; increase the number of dentists who provide care to children starting at age 1; promote policies that improve access to care for low-income children and pregnant women; and educate families about the importance of early preventive care, including selecting a dental home for children by age 1.

- In the last four years Colorado launched a project that added dental hygienists to five urban and rural primary care medical offices, where the average patient age is 19 months. When children are seen for routine vaccinations and well-child visits, the hygienists also provide oral health assessments, cleanings, oral health and nutrition education, fluoride varnish and sealants. The project is funded by Delta Dental of Colorado Foundation.
- In 2009 Colorado Medicaid began reimbursing primary care providers for assessing oral health, interviewing patients and applying fluoride varnish for children under age 4. To be eligible, those providers must have received training in “Cavity Free at Three” or “Smiles for Life” curricula and provide the services as part of well-child visits.
- The Collaborative Scopes of Care Advisory Committee—created in 2008 by the governor’s executive order—completed its study on the practice of advanced-practice nurses, physician assistants and dental hygienists “in terms of the services that are delivered, the settings in which those services are delivered and the quality of care provided.”¹⁹ The following year, legislation passed allowing dental hygienists to make a dental hygiene diagnosis. The intent was to foster improved communication with patients and referrals to dentists.

Educate Children and Families

In the last decade, Colorado has heightened its focus on preventing tooth decay at the earliest possible stages. Educating children and families—especially about healthy behaviors at home—is a key strategy.

THE DATA

One in three young Colorado children has untreated cavities, according to the most recent survey in 2003 of Head Start children. Of those, 14 percent were 1-year-olds.

This early tooth decay is referred to as Early Childhood Caries. By definition it is confined to primary teeth, more commonly referred to as baby teeth. However, decay is painful and affects not only the child’s overall health and development, but also the growth of permanent teeth.

In 2010, only 3 percent of Colorado children ages 1 to 5 had visited the dentist by age 1, according to the Colorado Child Health Survey. By age 5, one-third still had never seen a dentist—despite 58 percent of

parents reporting their health care provider had told them how to prevent cavities.²⁰

CAUSES OF ORAL DISEASE

Parents may transmit dental caries—the disease responsible for causing tooth decay—to their children. They may unknowingly transmit bacteria from their untreated dental disease through their saliva by sharing pacifiers and utensils with infants. Improper feeding practices such as leaving an infant unattended with a bottle or filling a bottle with sugary drinks also may accelerate the disease process. Home health behaviors, such as not brushing regularly, also contribute to a child’s poor oral health.

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PREVENTION STRATEGIES

Providing dental care and education to pregnant women is a significant preventive strategy, but it faces many barriers such as mothers’ and dental providers’ attitudes and knowledge, and concerns about safety and efficacy.²¹

There also are barriers to providing dental treatment to very young children. Providers may be unsure how to treat infants and young children, and parents may not understand the importance of early oral health care.²²

The American Academy of Pediatrics, American Dental Association, American Academy of Pediatric Dentists and others agree that children should see a dentist when their first tooth comes in and before age 1.²³

COLORADO ACCOMPLISHMENTS

- In 2012 Colorado Gov. John Hickenlooper acknowledged oral health as one of Colorado’s 10 winnable battles in the next five years.

- The 2008 statewide “Early Childhood Framework,” from the Office of the Colorado Lieutenant Governor, includes oral health in patient and parent education. It also encourages all providers who serve children to communicate and collaborate.
- Colorado foundations have made oral health a priority, investing more than \$5.2 million in 2008 alone. They fund promising practices and initiatives to raise awareness about the importance of oral health, particularly among pregnant women and children. One example is “Cavity Free at Three,” which has trained more than 1,100 dental, medical and public health providers and impacted 40,000 children and families. The initiative trains primary care practitioners and dentists about the importance of oral health in pregnant women. It also helps professionals assess risk and offer guidance and fluoride varnish for children under the age of 3.
- Colorado’s Medical Home Initiative, launched in 2001, includes oral health as part of the medical home vision for Colorado. The goal is to ensure that any health care a child receives, including oral health, meets the components of medical home care and is centered on patients and families.
- The governor’s 2000 Commission on Children’s Dental Health made nine recommendations to improve children’s oral health. The results were five legislative initiatives: education loan repayments for providers; tax credits for rural providers; funding for safety net expansion; direct Medicaid reimbursement for dental hygienists; and for the first time, the addition of dental benefits in CHP+.

Solving the Problem: Strategies for Success

Colorado is in an ideal position to improve oral health for its children. The Colorado Oral Health Plan provides an update for years 2012 to 2017. The governor’s staff will provide metrics and strategies for documenting improvement in Coloradans’ oral health, including children.

Thanks to the reorganization and strengthening of the state’s public health infrastructure, Colorado will be in a better position to raise awareness of the importance of oral health throughout the state.

Specific strategies for policymakers to consider to improve oral health include:

- Provide education and support for community water fluoridation and school-based sealant programs across all levels of state and local government.
- Work with the dental community to identify barriers to participating in publicly funded health programs.

- Develop strategies to increase participation. Allow all dental providers to practice to the full scope of their education and licensure.
- Educate the public about the importance of oral health, its relationship to overall health and the importance of preventing oral disease at the earliest possible stage.
- Support primary care providers' training and provision of oral health care services.
- Closely align oral health with early childhood programs, including Head Start; Colorado WIC (Women, Infants, and Children) programs; early childhood education and child care; home visitation; and prenatal programs.

- Ensure all children have access to oral health prevention and treatment by supporting safety net clinics, school-based health clinics and insurance coverage—including benefits for parents so healthy hygiene and good nutrition are practiced at home, preventing the transmission of disease from caregiver to child.
- Support dental public health infrastructure at the state and local levels to promote dental visits by age 1 and evidenced-based public health strategies; ensure coordination and collaboration among health providers; and monitor the oral health status of Colorado's population.

Following these steps can strengthen efforts to ensure that children's oral health is indeed one of Colorado's winnable battles.



¹ Colorado Oral Health Surveillance System. www.cdphe.state.co.us/pp/oralhealth/COHSS.html (Note: The sampling is probability proportional to size with implicit stratification by percentage of children eligible for free and reduced-price meal programs.)

² U.S. Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General*. Rockville, MD: U.S. DHHS, NIDCR, NIH, 2000.

³ Fisher-Owens, SA, et al. "Influences on Children's Oral Health: A Conceptual Model." *Pediatrics* (online version). 2007: e510-e520.

⁴ Sullivan, DM, and N Tinanoff. "The Association of Early Dental Caries Patterns with Caries Incidence in Preschool Children." *J Public Health Dentistry*. Spring 1996; 56(2).

⁵ American Dental Association. *Fluoridation Facts*. 2005. www.ada.org/sections/professionalResources/pdfs/fluoridation_facts.pdf

⁶ National Oral Health Surveillance System: Colorado. Centers for Disease Control and Prevention. www.cdc.gov/NOHSS

⁷ Kumar, JV, et al. "Geographic Variation in Medicaid Claims for Dental Procedures in New York State: Role of Fluoridation Under Contemporary Conditions." *Public Health Rep*. September-October 2010; 125(5): 647-654.

⁸ The Pew Center on the States. *The State of Children's Dental Health: Making Coverage Matter*. May 2011.

⁹ Colorado Oral Health Surveillance System. www.cdphe.state.co.us/pp/oralhealth/COHSS.html

¹⁰ Healthy People 2020: Leading Health Indicators. October 31, 2011. www.healthypeople.gov/2020/LHI/Default.aspx

¹¹ *Colorado Health Access Survey*. Colorado Health Institute. Accessed November 15, 2011. www.coloradohealthaccesssurvey.com

¹² Manski, RJ, and E Brown. *Dental Use, Expenses, Private Dental Coverage, and Changes, 1996 and 2004*. Rockville, MD: AHR Q, Chart Book 17; 2007.

¹³ Form CMS 416: Annual EPSDT Participation Report. Department of Health Care Policy and Financing. 2010.

¹⁴ Colorado Health Institute. *The Impact of Oral Disease on Colorado's Children*. June 2010.

¹⁵ Colorado Health Institute. *Oral Health in Colorado: Utilization, Barriers to Care and the Role of Workforce*. August 2011 (draft).

¹⁶ Synopses of State and Territorial Dental Public Health Programs. Trends: Colorado 2005-2009. April 16, 2010. www.apps.nccd.cdc.gov/synopses/index.asp

¹⁷ Medicaid Dental Rendering Providers by County (DAS estimates 80 percent to 90 percent accuracy). November 17, 2010. Correspondence with Colorado Department of Health Care Policy and Financing.

¹⁸ Children's Dental Health Project. ACA: Fulfilling the Pledge to Improve America's Oral Health. March 2011. www.cdhp.org/resource/aca_fulfilling_pledge_improve_america's_oral_health

¹⁹ Colorado Health Institute. *Collaborative Scopes of Care Advisory Committee: Final Report of Findings*. December 30, 2008.

²⁰ Colorado Child Health Survey 2010. Colorado Department of Public Health and Environment. www.cdphe.state.co.us/hs/mchdata/mchdata.html

²¹ Michalowicz, BS, et al. "Examining the Safety of Dental Treatment in Pregnant Women." *J Am Dent Assoc*. 2008; 139: 685-695.

²² Rich, JP, et al. "General Dentists and Pediatric Dental Patients: The Role of Dental Education." *Journal of Dental Education*. 2006; 70(12): 1308-1315.

²³ Casamassimo, P, et al. *Embracing the Age One Dental Visit in Clinical Practice*. Improving Perinatal and Infant Oral Health Project. www.cdhp.org/system/files/July09PDTCDHP.pdf